

2013

Amie Wilkinson- University of Chicago :

Title: *The "general case"*

Abstract: In the early 1930's, the Ergodic theorems of von Neumann and Birkhoff put Boltzmann's Ergodic Hypothesis in mathematical terms, and the natural question was born: is ergodicity the "general case" among conservative dynamical systems? Oxtoby and Ulam tackled this question early on and showed that the answer to this question is "yes" for continuous dynamical systems. The work of Kolmogorov, Arnol'd and Moser beginning in the 1950's showed that the answer to this question is "no" for C^∞ dynamical systems. I will discuss recent work with Artur Avila and Sylvain Crovisier that addresses what happens for C^1 dynamical systems.

Joseph Rosenblatt : Univ Illinois at Urbana Champaign-

Title: *Norm Approximation in Ergodic Theory*

Abstract: Classical ergodic averages give good norm approximations, but these averages are not necessarily giving the best norm approximation among all possible averages. We consider

- 1) what the optimal Cesaro norm approximation can be in terms of the transformation and the function,
- 2) when these optimal Cesaro norm approximations are comparable to the norm of the usual ergodic average, and
- 3) oscillatory behavior of these norm approximations.

Joe Auslander- University of Maryland at College Park.

Title : [Regional proximity and the Veech relation](#)

Stefano Luzzatto - ICTP- Trieste.

Title: *Geometric properties of maps with positive Lyapunov exponents.*

I will discuss the general problem of the existence of invariant probability measures which are absolutely continuous with respect to Lebesgue; in particular the relation with positive Lyapunov exponents and certain "generalized" Markov structures.

Michael Lin- Ben Gourion University

Title - [Almost everywhere convergence of convolution powers on the circle-](#)

Mariusz Lemanczyk- Nicolaus Copernicus University

Title -*On spectral disjointness of powers for rank-one transformations and Mobius orthogonality*

Abstract: The aim of the talk is to show that the sequences given by the symbolic models of rank one transformations obtained from a bounded-recurrent cutting and stacking procedure are orthogonal to the Mobius function (a particular case of Sarnak's conjecture). This generalizes a recent result of J. Bourgain for the subclass of rank one systems in which both the number of cuts of columns and of spacers were bounded. One of our principal tools will be spectral theory of rank one transformations. The talk is based on my joint work with H. el Abdalaoui and T. de la Rue.

Jana Rodriguez Hertz- IMERL – Facultad de Ingenieria- Uruguay

Title: *Partially hyperbolic dynamics in 3-manifolds*

Abstract: We review some crucial aspects about partial hyperbolicity in 3-manifolds: ergodicity, dynamical coherence and classification. We will survey recent advances on the Hertz-Hertz-Ures conjectures about these three aspects.

Tushar Das, Oregon State University

Title: *Patterson-Sullivan theory for divergence-type groups*

Abstract: Given a non-elementary group of isometries acting on hyperbolic space with a compact limit set, we review the Patterson-Sullivan construction of quasiconformal measures supported on its limit set. It is more difficult to prove the existence of quasiconformal measures in the case where the group does not have a compact limit set. Unexpectedly it is however possible, by working in the Stone-Cech compactification of the boundary and using a generalization of an argument of Thurston's used to prove part of the classical Hopf-Tsuji-Sullivan theorem, to prove the existence of quasiconformal measures for groups of divergence type. This is part of an ongoing collaboration with David Simmons (Ohio State University) and Mariusz Urbanski (University of North Texas).

Guy Cohen - Ben Gourion University

Title: [*Double coboundaries for commuting contractions*](#)

Olena Karpel: Institute for Low Temperature Physics, Kharkov, Ukraine.

Title: [*Measures on Cantor sets and their classi*](#)

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Mrinal K. Roychowdhury - University of Texas-Pan American

Title: [Quantization coefficients for infinite iterated function systems of self-similar mappings](#)

Dalia Terhesiu- Tor Vergata University

Title : [Mixing for infinite measure preserving semi-flows](#)

Ilya Vinogradov - University of Bristol

Title : [Equidistribution of generalized Farey points and applications to counting](#)

Yves Guivarch-University of Rennes I

Title:" On products of random matrices and products of random affine transformations".

Abstract: Let V be the d -dimensional Euclidean space, G (resp H) the linear (resp affine) group of V , p a compactly supported probability on H , with projection q on G . We consider the random walk on V defined by p and its Markov operator P . We assume that the support of q generates a "large" subgroup of G and P has a finite invariant measure m on V with unbounded support. The second condition is satisfied if the dominant Lyapunov exponent of the product of independent random matrices governed by q is negative, the support of q contains an expanding matrix, and the support of p has no fixed point in V .

We show that the measure m is " α -homogeneous at infinity" , and we describe the tail measure. This answers in the affirmative a conjecture of F. Spitzer on the construction of stable laws; this property plays also an important role in extreme value theory for the p -random walk on V and in random walk in a random medium on \mathbb{Z} .

The proof is based on the simplicity of the dominant Lyapunov exponent for products of some Markov-dependent random matrices, on related spectral gap properties on projective spaces and on the ergodicity properties of the p -random walk on a conditional boundary dual to V .

Jean Pierre Conze- University of Rennes I

Title: [Central Limit Theorem for \$\mathbb{Z}^d\$ actions by toral automorphisms](#)

Agata Piekniejska- Nicolaus Copernicus University

Title: [Strong regularity of affine cocycles over irrational rotations](#)

Victoria Sadovskaya- Penn State

Title: *Cohomology of linear cocycles over hyperbolic systems*

Abstract:

We consider Hölder continuous $GL(d, \mathbb{R})$ -valued cocycles over a hyperbolic dynamical system. An important motivation comes from the differential of a hyperbolic diffeomorphism or its restriction to an invariant sub-bundle. We discuss what conclusions can be made based on the values of the cocycle at the periodic points of the system. In particular, we consider the questions when two cocycles are cohomologous and when a cocycle is cohomologous to one with values in a smaller group.

Joanna Kulaga Przymus- Nicolaus Copernicus University

Title: [Self-joining properties and embeddability of automorphisms into measurable flows](#)